

MATERIAL SAFETY DATA SHEET

1. MATERIAL INFORMATION:

Material Identifier: Petroleum Crude Oil - Heavy

Manufacturer: Provident Energy Ltd.

Emergency Tel.: (403) 296-2233

Fax Number: (403) 718-1305

Address: 2100, 250 – 2nd Street S.W.
Calgary, Alberta T2P 0C1

Description: Heavy crude oil.

Chemical Identity: A naturally occurring mixture of paraffins, naphthenes, aromatic hydrocarbons and small amounts of sulphur and nitrogen compounds.

Formula: General formula C(n) H(2n+2)

Synonyms/Trade Names: Varies names related to the particular production field may be applied.

Material Uses: Used as a refinery feed stock. Heavy crude oil may be diluted with condensate to reduce viscosity.

2. HAZARDOUS INGREDIENTS:

Ingredients	CONC%	CAS NO	PIN	LC50/LD50	SPECIES ROUTE
Complex and highly variable mixture of naturally occurring hydrocarbons.		8002 - 05 – 9	1267	No data available.	
May be diluted with condensate to reduce viscosity.	0 – 20%	None	1267	No data available.	
Condensate may contain small amounts of benzene.				0.5 – 2.5 ppm	

3. REGULATORY CLASSIFICATION:

WHMIS: Class B, Division 2 - Flammable Liquid
Class D, Division 2, Subdivision A: Very Toxic Material
Class D, Division 2, Subdivision B: Toxic Material

TDG: Shipping Name: Petroleum Crude Oil 3.0
P.I.N. – UN 1267
Packing Group - 111

4. HEALTH HAZARD INFORMATION:

NATURE OF HAZARD

Inhalation:	May cause headaches, dizziness, loss of appetite, weakness, loss of coordination, and unconsciousness. Crude oil vapours are irritating to the upper respiratory tract.
Eye Contact:	Crude oil vapours are moderately irritating to the eyes use chemical goggles.
Skin Contact:	Use nitrile rubber gloves and protective wear to prevent exposure. Avoid prolonged or repeated skin contact.
Ingestion:	Aspiration of vomitus into the lungs must be avoided as even small quantities may result in aspiration pneumonitis.
Toxicological Summary:	Benzene is a known carcinogen and may cause damage to the bone marrow making system.

OCCUPATIONAL EXPOSURE LIMITS (OEL):

Benzene has an OEL of 0.5 – 2.5

5. FIRE HAZARD:

Flash Pt (Celsius):	>-40 (PMCC)
Auto-ignition Temp (Celsius):	Not Available
Flammable Limits (% volume):	Not Available
General Hazards:	Static discharge: Highly flammable, vapours are heavier than air and may collect in low-lying areas. Vapours may travel considerable distances to ignition sources and cause a flash fire.
Means of Extinction:	Fire extinguishing substances: foam, and dry chemical. Water may be ineffective, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse vapours. Respiratory, fire retardant clothing, and eye protection required for fire fighting personnel. Self-contained breathing apparatus must be used when fighting all hydrogen sulphide fires.

6. PHYSICAL DATA:

Physical State:	Liquid	Spec. Gravity (Water=1): (Water=1)	20 to 10 API @ 15.6C
Odour:	Aromatic or petroleum odour.	Odour Threshold:	N.A.
Appearance:	Usually black or green.	Vapour Pressure:	100 - 800 kPa @ 20C
Vapour Density (Air=1): (Air=1):	Not Available	pH:	N.A.
Boiling Pt(Celsius):	10 - 1100	Freezing Pt(Celsius):	-60 to +10
Evap. Rate:	Not Available	Volatile by Vol:	<20%
Solubility in Water:	Not Available	Coeff Water/Oil Distribution:	N.A.
Mol Wt:	N.A.	Other:	No additional data.

7. PREVENTATIVE MEASURES:

Respiratory Protection:	Not usually necessary unless oil is generating vapours through overheating or spray/mist through mechanical agitation.
Skin Protection:	Use nitrile rubber gloves and protective wear to prevent exposure.
Eye Protection:	Wear chemical goggles.
Exposure Control:	Wear protective equipment if exposure is possible. Work in well ventilated area if exposure to spray or mist is likely. Otherwise, use air purifying or air supplied respirator.
Waste Disposal:	Contaminated material should be placed in disposable containers and disposed according to applicable federal, provincial, and local regulations.
Handling/Storage:	Use in a well ventilated area. Under normal conditions respiratory protection is not needed. Respiratory equipment may be required in poorly ventilated areas. Electronically ground/bond during pumping or transfer to avoid static accumulation.

8. REACTIVITY DATA

Hazard:	Highly flammable.
Stability:	This material is stable
Incompatibility with:	Oxidizing materials, strong acids and chlorine.
Reactivity Conditions:	Heat or ignition sources may ignite product.
Decomposition Products:	Carbon monoxide, carbon dioxide, sulphur oxides and possibly dense black smoke.

9. FIRST AID MEASURES:

Inhalation:	Protect rescuer. Remove victim to fresh air immediately. If breathing stops, administer AR. Keep victim warm and at rest. Seek medical attention immediately.
Eye Contact:	Flush eyes with warm water for at least fifteen (15) minutes. Summon medical aid immediately.
Skin Contact:	Remove contaminated clothing. Wash affected areas with warm soapy water. If irritation is severe or prolonged then victim should seek medical advise.
Ingestion:	If this material is swallowed DO NOT induce vomiting. If vomiting begins, lower victim's head in an effort to prevent vomitus from entering lungs. Seek medical attention. Never give anything by mouth to an unconscious person.

10. MSDS PREPARATION:

By: **Provident Energy Ltd.**
(403) 296-2233

Date of Latest Review: May 13, 2010

Information Sources: Industry publications and company correspondence.

Additional Information: L.E.L. – Lower Explosive Limit
U.E.L. - Upper Explosive Limit
P.I.N. – Product Identification Number
WHMIS – Workplace Hazardous Material Information System
TDG – Transportation of Dangerous Goods
NA – No data available

DISCLAIMER ... The information presented in this Material Safety Data Sheet is based on tests, research, and reports from the above-mentioned sources, which are believed to be accurate and reliable. The data and information are presented without warranty, guarantee or liability on the preparer in good faith.

May 13, 2010